Intergovernmental Oceanographic Commission

Manuals and Guides

25

STANDARD AND REFERENCE MATERIALS FOR MARINE SCIENCE

Revised edition, 1993

U.S. NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

INTERNATIONAL ATOMIC ENERGY AGENCY

UNITED NATIONS ENVIRONMENT PROGRAMME

1993 UNESCO

Preface

The role of the IOC-IAEA-UNEP Group of Experts on Standards and Reference Materials (GESREM) focuses on improving the availability of reference materials, an eventual component of data validation strategies necessary for pollution control, and marine and coastal areas management.

It was in fulfillment of this role and to ensure the widest dissemination of information on reference materials that the sponsoring agencies of GESREM offered to reprint the second edition of the catalogue on Standards and Reference Materials for Marine Sciences published by the National Oceanic and Atmospheric Administration (US-NOAA) in 1989. The Reprint, issued as IOC Manuals and Guides No. 21 in 1990, stimulated such an inflow of new information on available reference materials from both producers and users of reference materials worldwide, that a revision of the catalogue became inevitable in such a short space of time. The task was again undertaken by Dr A. Cantillo of NOAA, who had complied the Second Edition.

The Third Session of GESREM (Brussels, 22-24 September 1992) reviewed this updated version and made a recommendation that it be published promptly for extensive distribution. The third edition of the catalogue lists close to 2,000 reference materials from sixteen producers (as against 900 reference materials from thirteen producers in the second edition) and provides information on sources, description, use, availability and analyses concentrations.

A more complete description of the catalogue is given in the Introduction to this document by Dr A. Cantillo to whom the sponsoring agencies of GESREM are grateful.

This Third Edition, published as IOC Manuals and Guides No. 25 replaces IOC Manuals and Guides No. 21.

Standard and Reference Materials for Marine Science
Third Edition

Adriana Y. Cantillo

Coastal Monitoring and Bioeffects Assessment Division
Office of Ocean Resources Conservation and Assessment
National Ocean Service

ABSTRACT

This is the third edition of the catalog of reference materials suited for use in marine science, originally compiled in 1986 for NOAA, IOC, and UNEP. The catalog lists close to 2,000 reference materials from sixteen producers and contains information about their proper use, sources, availability, and analyte concentrations. Indices are included for elements, isotopes, and organic compounds, as are cross references to CAS registry numbers, alternate names, and chemical structures of selected organic compounds. This catalog is being published independently by both NOAA and IOC/UNEP and is available from NOAA/NOS/ORCA in electronic form.

1. Introduction

The Thirteenth Session of the Assembly of the Intergovernmental Oceanographic Commission (IOC), which met 12-28 March 1985, recognized that the availability and adequacy of standards and certified reference materials are key components in the conduct of intercalibration exercises, regional contaminant assessments, and marine chemistry research in general. The Assembly instructed the Working Committee for the Global Investigation of Pollution in the Marine Environment (GIPME), through the IOC/UNEP [IOC/United Nations Environment Programme Group of Experts on Methods, Standards, and Intercalibration (GEMSI)] to conduct an in-depth study on the matter.

At the Sixth Session of GEMSI, in November 1985, an Ad Hoc Group on the Coordination of International Activities on the Preparation and Distribution of Reference Materials for Marine Chemistry was constituted. The first meeting of the Ad Hoc Group took place in Geneva at the UNEP - Oceans and Coastal Areas Programme Activity Centre, 3-4 June 1985. It was decided at that time to convene a meeting with representatives from a number of national and international agencies and institutions involved in the production of reference materials. This meeting took place in Washington, D.C., 28-30 October 1985. One of the recommendations arising from this meeting was the preparation and maintenance of a publication that assembles and updates all information available on reference materials for use in marine chemistry and marine pollution research and monitoring (IOC, 1985). In response to this recommendation, the Office of Ocean Resources Conservation and Assessment of the National Oceanic and Atmospheric Administration (NOAA) undertook the project. This was accepted by IOC and UNEP, the co-sponsors of GEMS1. The Ad Hoc Group that met in Washington, D.C., subsequently was established as the IOC/UNEP Group of Experts on Standards and References Materials (GESREM). At its first formal meeting (Paris, July 1987), GESREM noted the great value of the catalog and recommended that NOAA periodically update it.

This document is the third edition of the compendium of information originally published in 1986 on various types of reference materials. Included are reference materials of marine and/or estuarine origin, such as the marine mud (MAG-1) prepared by the US Geological Survey (USGS) and the seawater (NASS-4) prepared by the National Research Council of Canada (NRC); materials used in special situations such as the sewage sludge reference materials (CRM 144 and CRM 146) prepared by the Community Bureau of Reference (BCR); "classic' reference materials such as the bovine liver (SRM 1577b) prepared by the National Institute of Standards and Technology (NIST); and instrument performance materials such as the NIST series of aqueous elemental solutions. The instrument performance materials are of special interest since they span a variety of analytical techniques from scanning electron microscopy to spectrophotometry. Soil reference materials have been added to this edition. Table 1 lists the reference materials included in the catalog that are of strictly marine or estuarine origin. This catalog is being published independently by both NOAA and IOC/UNEP and is available from NOAA/NOS/ORCA in electronic form.